

Appl. No.: 09/963,360
Amdt. Dated: 12/16/2004
Off. Act. Dated: 08/17/2004

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and discussion presented herein.

1. **Allowable Subject Matter**

The applicant thanks the Examiner for allowing Claims 59-61 and indicating that Claim 31 would be allowable if rewritten in independent form. The Applicant has rewritten Claim 31 in independent form, accordingly Claim 31 and the claims that depend therefrom should now be in condition for allowance.

2. **Rejection of Claims 36 and 55 under 35 U.S.C. §112, second paragraph.**

Claims 36 and 55 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. In support of the rejection, the Examiner stated, "there is no antecedent basis for 'said spheres' recited..."

In response, the Applicant has amended Claim 36 and Claim 55 to provide a proper antecedent basis for the spheres. Therefore, the Applicant respectfully submits that Claims 36 and 55 are now cast in proper form under 35 U.S.C. § 112.

The Applicant has also amended Claims 19, 30 and 49 to include the limitation of a "particulate" support substrate to distinguish these claims over the "air bed" prior art that was interpreted by the Examiner as a support substrate. In the "advisory action" the Examiner stated that there was no support for the term "particulate support substrate." The Applicant respectfully disagrees. The particulate nature of the support substrate is shown in FIG. 4 and FIG. 5 of the drawings and described in the portion of the specification related to these drawings. For example, Page 7, lines 8-10 of the specification provides:

"The food material is preferably placed on a substrate comprising a plurality of spheres. Although the spherical shape is preferred, it will be understood that any shape substrate may be used."

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At Page 14, lines 2-9 of the specification provides:

"Referring also to FIG. 4 and FIG. 5, the invention preferably includes a drying bed that utilizes a support substrate. The support substrate preferably comprises a plurality of spheres 70 held within vertical vanes 16 of conveyor belt 12 to form the drying bed. Each area between each of the vanes 16 is filled with spheres 70 and food particles 72. For clarity, FIG. 4 and FIG. 5 show only a single space filled between vanes 16. Alternatively, the spheres 70 and food particles 72 may be placed in an open container with perforated walls and bottom to support the drying bed that is placed on a perforated conveyor or other support structure."

The particulate nature of the drying bed of one embodiment of the present invention is described at Page 14, lines 10-19 of the specification as follows:

"Spheres 70 are preferably approximately $\frac{3}{4}$ of an inch in diameter and are made of heat resistant plastic or similar material. The size of the spheres may be increased or decreased depending on the type of material that is to be desiccated and the size of the particles that are introduced into the apparatus. Food particles, or other material 72 and spheres 70 can form a drying bed of varying depths, but the bed preferably has a depth of approximately twenty-four inches or less in the embodiment shown. A drying bed of this type facilitates faster drying because the spheres separate the product and increase the exposed surface area of the product. While the drying bed is preferably composed of spheres, it will be understood that the drying bed could be composed of solids of virtually any shape."

The Applicant submits that these and other references in the specification concerning the drying bed and the support substrate provide ample support for the amendment to the claims. No further search should be necessary in view of the previous search of the subject matter of Claims 35-37 and 44-46.

3. Rejection of Claims under 35 U.S.C. § 102(b).

Claims 19, 24, 30, 36, 62, 64 and 68 were rejected under 35 U.S.C. § 102(b) as being anticipated by a *Scott et al* (U.S. No. 6,233,844 B1), a newly cited reference. In support of the rejection, the Examiner stated, "Note that the limitation 'a support substrate' recited in claims 19, 30 and 62 reads on the foraminous support 56 of Scott having a plurality of spaced-apart flights for use in separating and supporting particulate

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food products.”

Scott discloses a stationary perforated table where heated air is forced through the perforations. Endless chains separated by vanes are used to move the material across the perforated table. Scott does not disclose a conveyor, a particulate support or ultrasound. Scott discloses what is known in the art as a “fluid bed.” The food material becomes airborne as air is blown through the fluid bed. The material does not contact the perforated bed during use and the “foraminous support 56” does not provide a support structure or function. The floating material is moved along the length of the apparatus by paddles in Scott and there is no conveyor belt. Fluid beds require a threshold quantity of air directed through the bed at or above a threshold velocity in order for the apparatus to function. If the airflow is below the velocity and volume thresholds then the material to be dried will not become airborne and the material will clump and will not dry properly. In contrast, the present invention does not have these threshold limitations and the airflow velocity and volume are about three times less than the requirements of a typical fluid bed as disclosed in Scott. In addition, there is a size and weight limitation in the type of material that can be dried in a fluid bed. For example, large material such as meat chunks or very fine particulate materials cannot be used with a fluid bed. Accordingly, the Applicant respectfully disagrees that the perforated table of Scott is a “substrate” as claimed.

In response to the rejection, the Applicant has amended independent Claims 19, 25, 30, 40, 49 and 62 to include limitations that are not taught or suggested by Scott. In particular, each of these claims has been amended to include the limitation of “a particulate support substrate configured to separate pieces of food product.” Such structure is not present in any of the references cited by the Examiner. Furthermore, Scott does not disclose ultrasound. Therefore, the Applicant respectfully submits that Claims 19, 25, 30, 40 and 62, as well as the claims that depend therefrom, recite one or more elements not found in the cited reference and are not anticipated by the Scott reference. Therefore, the Applicant respectfully requests that the rejection of Claims

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19, 24, 30, 36, 62, 64 and 68 under 35 U.S.C. § 102(b) be withdrawn.

4. Rejection of Claims under 35 U.S.C. § 103(a).

A. Rejection of Claims 20-22, 32-33, 36, 38-39 and 65-67 under 35 U.S.C. § 103(a).

Claims 20-22, 32-33, 36, 38-39 and 65-67 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Scott* (U.S. 4,419,834) in view of *Juarez et al* (U.S. No. 6,233,844 B1). The rejected claims are dependents of either independent Claim 19, Claim 30, or Claim 62. In support of the rejection the Examiner states: "Scott is silent to the teaching of an ultrasound source configured to expose the food products to ultrasonic waves. Juarez et al show the conventional expedient of guiding a hot gas stream over solid food products to be dehydrated and simultaneously subjecting the products to ultrasonic waves...."

The Applicant respectfully disagrees that the claimed invention is disclosed in Juarez or a combination of Juarez and Scott, and further submits that there is no suggestion, incentive or motivation to combine these patents. However, Claim 20 has been canceled.

Initially, it should be noted that the combination proposed by the Examiner does not meet all of the elements and limitations of the claims as amended. Neither Scott nor Juarez disclose a "particulate substrate" that "separates and supports" pieces of material to be dried. The perforated table of Scott neither "supports" nor "separates" the material during use. (See *Scott* Col. 4, lines 55-64.)

It should also be emphasized that Juarez discloses an apparatus where the ultrasound source is in *direct contact* with the food and *compresses* the food during processing. Juarez includes a plurality of ultrasonic diffusers configured like plates (5) that are connected to sound wave generators (17) and are in direct contact with the food products.

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Col. 2, lines 13-17 of Juarez states:

"[T]his object is achieved by the fact that ultrasonic waves are diffused in the product by an intermediary of vibrating plates which are *put in direct contact with the products*. Preferably, a static pressure is exerted on the products by these plates." (emphasis added)

The food product is actually compressed by the static pressure exerted by the plates (5) during dehydration. Col. 4, lines 23-27 of Juarez provides:

"Due to the continuous or even increasing static pressure as dehydration is carried out, the contact between diffusing plates 5 and the pieces remains guaranteed and the pieces are gently *compressed into the shape* of the flat disks." (emphasis added) (See also FIG. 6)

The Applicant submits that the apparatus disclosed in the Juarez patent could not be modified alone or be combined with Scott to produce the invention as recited in Claims 20-22, 32-33, 36, 38-39 and 65-67. In particular, the ultrasonic plates (5) could not be brought in contact with the materials on the substrate or *compress* the materials as disclosed in Juarez. There is no incentive or motivation to combine the teachings of the two patents because the Scott apparatus would not function as intended if it were modified with plates that contact and compress the material. Likewise, there is no motivation to add the chain/vane elements that moves floating material across a stationary perforated table to Juarez because these structures would interfere with the compression/ultrasound plates and not function as intended.

Accordingly, Claims 21-22, 32-33, 36, 38-39 and 65-67 recite structure that is patentable over the cited references for purposes of 35 U.S.C. § 103.

B. Rejection of Claims 35, 37 and 63 under 35 U.S.C. § 103(a).

Claims 35, 37 and 63 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Scott* in view of *Ware*. In support of the rejection of these claims the Examiner stated, "It would have been obvious to provide the conveyor of Scott with a plurality of spheres during the drying operation..."

The Applicant respectfully disagrees and submits that there is no incentive

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provided in either the Scott patent or Ware (the Applicants prior patent) to combine the patents to have two different "support substrates" (table and spheres) in combination as suggested by the Examiner. In addition, the airflow volumes, velocities and temperatures that are necessary to make the fluid bed of Scott function are substantially greater than those disclosed and claimed by the Applicant. If the proposed combination had two support substrates, forcing air through the substrate would elevate the Ware spheres. Therefore, the combination proposed by the examiner would knock all of the material to be dried off of the spherical substrate during use thereby causing inconsistent drying conditions. This is a significant disincentive to make the proposed combination.

C. Rejection of Claims 25-27, 29, 40-42, 47-51 and 56-58 under 35 U.S.C. § 103(a).

Claims 25-27, 29, 40-42, 47-51 and 56-58 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Scott* in view of *Juarez*.

Initially, it should be noted that the proposed combination does not disclose a "particulate support substrate" as recited in the independent Claims 19, 30, 40 and 49. Accordingly, there is at least one element that is not provided by the proposed combination.

Furthermore, there is no incentive to make the proposed combination because some of the essential elements of two patents are not compatible. As discussed above, *Juarez* discloses a plurality of plates (5) that are in contact with the pieces of food and emit ultrasonic energy as well as compress the pieces. This structure is incompatible with the perforated table and the sweeping paddles of *Scott*.

In addition, *Juarez* does not disclose a frequency range or a time of exposure. Since neither the apparatus of *Scott* nor *Juarez* can be modified to process food pieces on a substrate as claimed in the independent claims, the claims are not obvious in view of *Scott* and *Juarez*.

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Accordingly, Claims 25-27, 29, 40-42, 47-51 and 56-58 recite structure that is patentable over the cited references for purposes of 35 U.S.C. § 103.

D. Rejection of Claims 44-46, 53 and 55 under 35 U.S.C. § 103(a).

Claims 44-46, 53 and 55 were rejected under 35 U.S.C. § 103(a) as being unpatentable over *Scott* in view of *Juarez* and further in view of *Ware*. In support of the rejection of these claims the Examiner stated, "It would have been obvious to provide the conveyor of *Scott* with a plurality of spheres during the drying operation..."

As indicated above, the *Scott* and *Juarez* patents are incompatible and therefore cannot be combined. The Examiner noted that the perforated table of *Scott* was considered to be a "substrate" that "supported" and "separated" food particles. However, the Applicant submits that there is no incentive provided in any of the referenced patents to add a second "support substrate" (spheres) to the perforated table of *Scott* as suggested by the Examiner.

In addition, the combination proposed by the examiner would knock all of the material to be dried off of the spherical substrate during use thereby causing inconsistent drying conditions and results. This is a disincentive to make the proposed combination.

Applicant submits that the proposed combination of *Scott*, *Juarez* and *Ware* would not meet all of the limitations of the claims and that there is no motivation or incentive to make the combination.

5. Conclusion.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

The Applicant also respectfully requests a telephone interview with the Examiner in the event that there are questions regarding this response, or if the next action on the merits is not an allowance of all pending claims.

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CERTIFICATION UNDER 37 CFR 1.10

I hereby certify that the foregoing:

Amendment After Final Action

is being deposited with the United States Postal Service on December 16, 2004 in an envelope as "Express Mail Post Office to Addressee" Mailing Label Number EV352300539US addressed to the: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

STEVEN L. SMITH

(Type or print name of person mailing paper)



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